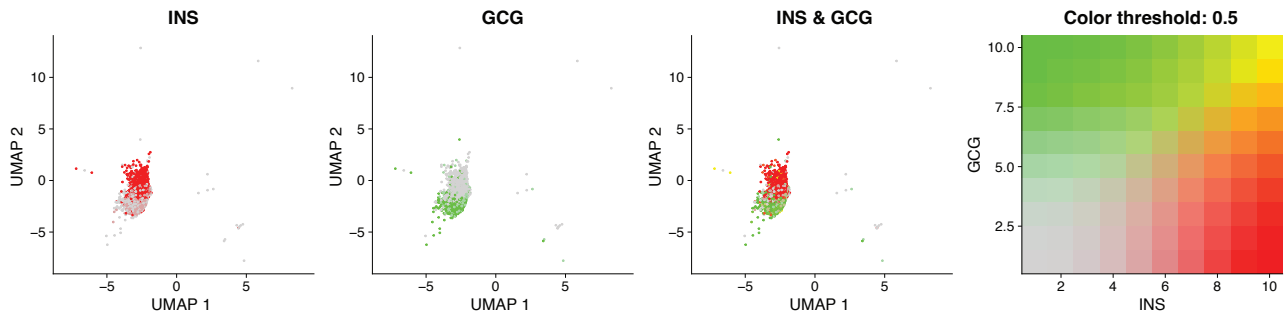
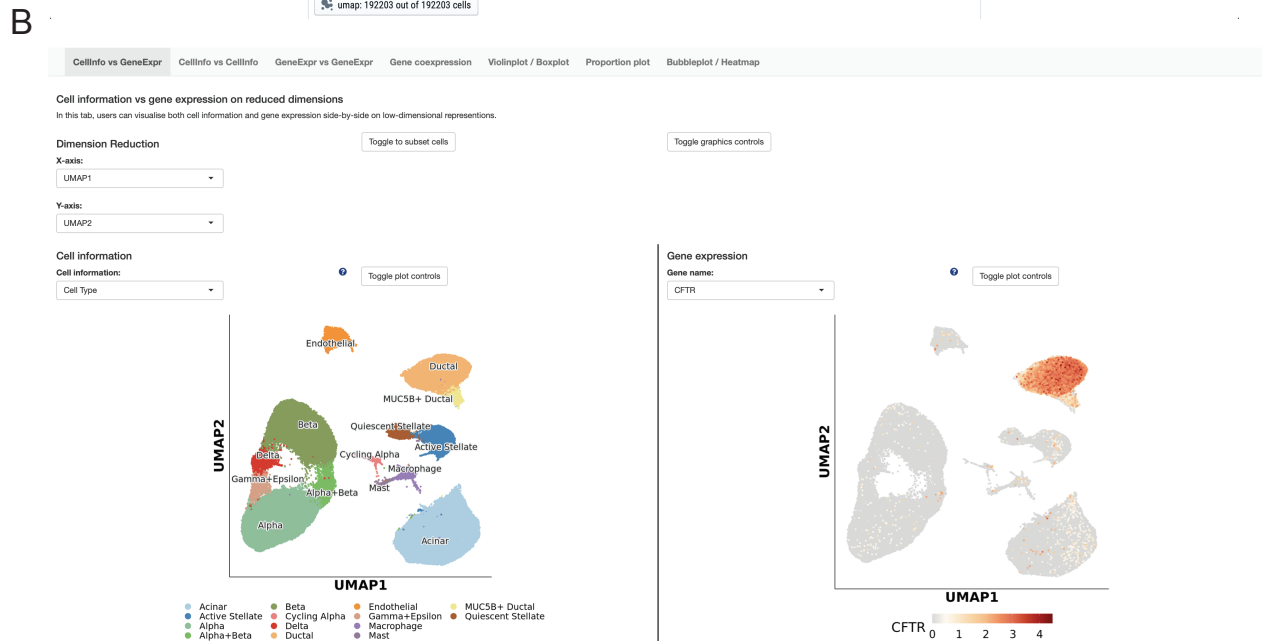
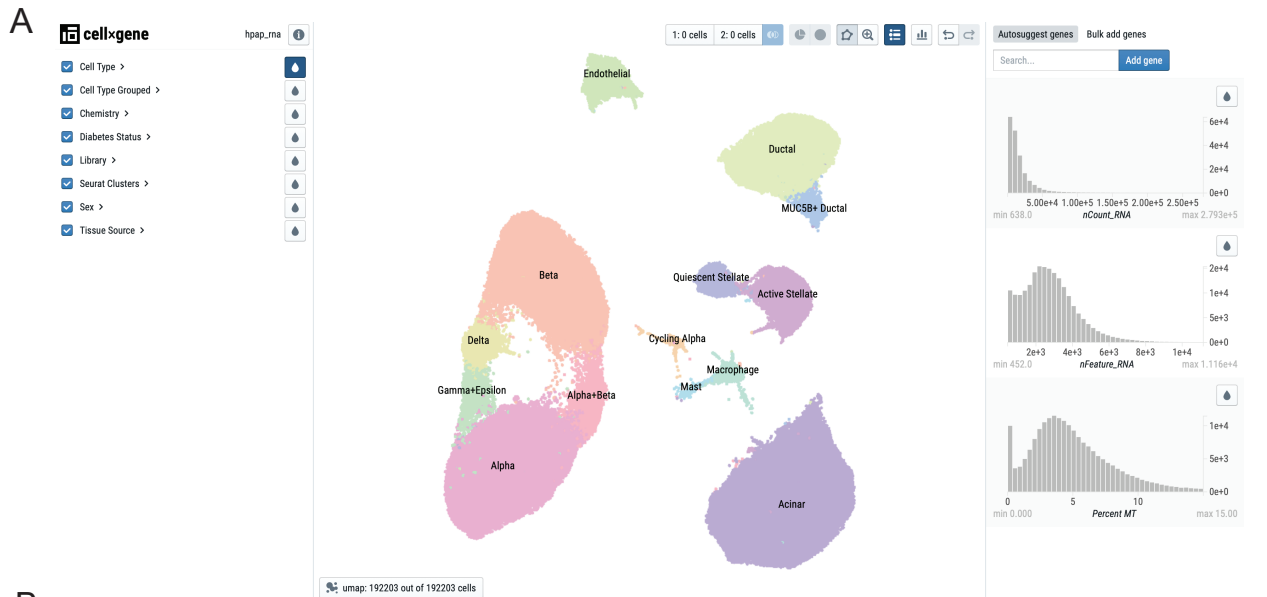


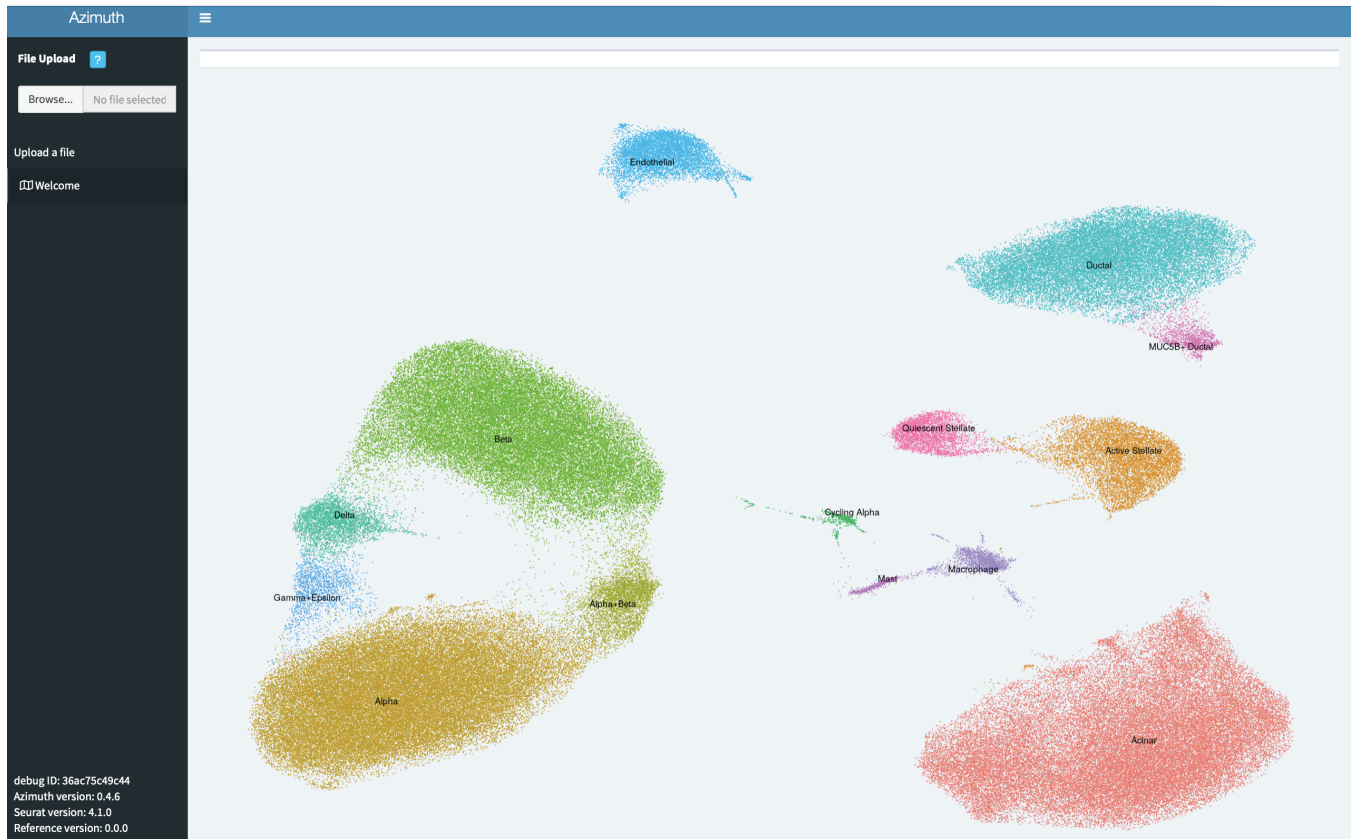
Supplementary Figure 1. Sample representation per cluster. Proportion of cells in each cluster from all donor samples in HPAP. No clusters have representation from only a small number of donors.



Supplementary Figure 2. Marker gene expression in alpha+beta cluster. Expression level of insulin and glucagon separately, as well as overlaid together, in the alpha+beta cluster. The insulin and glucagon expressing cells within this cluster appear largely distinct.



Supplementary Figure 3. Visualizing single cell profiles in islet cell types. (A) Islet single cell object in Cellxgene browser including cell type labels and technical features. (B) Islet single cell object in ShinyCell including cell type labels and expression of selected gene.



Supplementary Figure 4. Reference mapping of islet single cell gene expression. Screenshot of islet cell type expression in the Azimuth application which enables users to upload their own data and perform annotation of cell type identity.

A

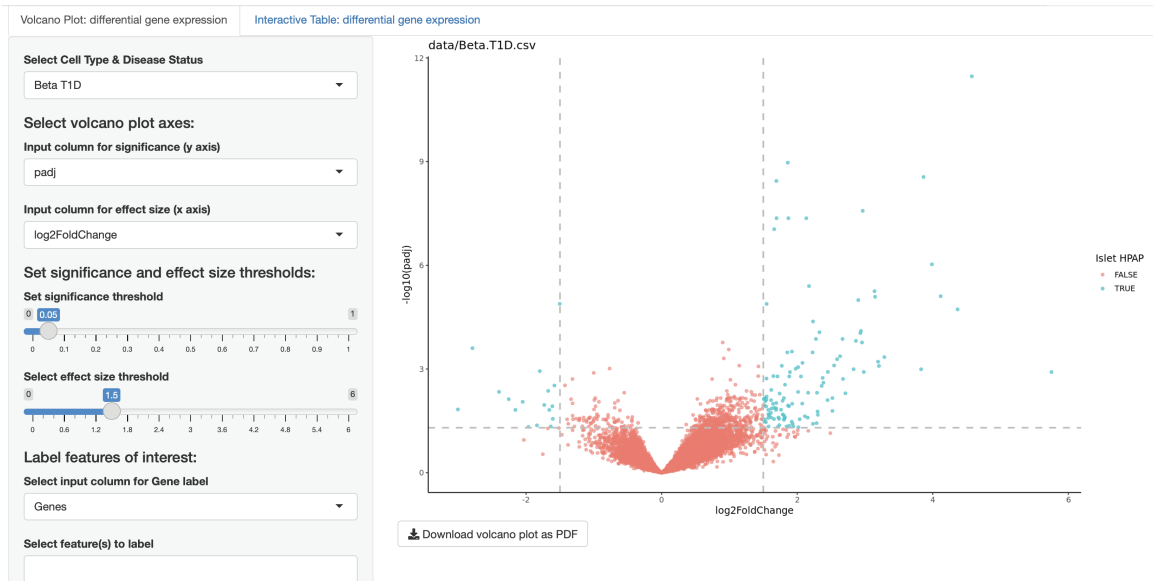
Gene expression by diabetes status Gene expression by diabetes status & celltype Gene expression by samples Gene expression by samples & celltype Gene expression

Show 25 entries

Gene	Acinar	Alpha	Alpha.Beta	Beta	Delta	Ductal	Endothelial	Gamma.Epsilon	Macrophage	Mast	Stellate
AIBG	3.212641e+00	4.675087e+01	34.81347390	2.847356e+01	33.66548633	1.096773e+00	6.29970261	45.46132061	4.548228e+01	42.3763157	4.586925e+01
AIBG-AS1	2.320169e-01	3.400946e+00	1.36038210	1.841105e+00	2.0532227	1.244174e-01	1.04563459	3.54291173	5.364167e+00	1.3527215	4.622447e+00
ACF	4.828836e-01	4.883233e+00	1.07896970	4.115999e-01	1.95889522	1.630135e-01	0.21819035	3.48709175	3.037363e-01	0.1312167	1.402195e-01
AZM	1.808825e-01	3.933402e-01	3.06446338	6.079455e-02	0.01745652	1.525629e-01	90.65889108	0.05574615	1.025682e+02	5.0701892	1.095499e+02
AZM-AS1	1.879183e-01	2.791509e-01	0.10145575	1.444395e-01	0.39886154	3.725872e-01	1.19519589	0.28253513	2.292314e+00	6.9657428	6.839012e-01
AZML1	2.405591e-03	1.549727e-02	0.00000000	3.989762e-03	0.00000000	1.719600e-03	0.02021480	0.00000000	7.533078e-03	0.00000000	1.494020e-02
AZML1-AS1	4.543127e-03	4.980638e-02	0.00000000	1.541975e-02	0.10896336	3.179456e-02	0.05003053	0.29445625	0.000000e+00	0.00000000	2.637030e-02
AZML1-AS2	3.574426e-04	1.167073e-02	0.00000000	0.000000e+00	0.00000000	1.992948e-02	0.00000000	0.00000000	0.000000e+00	0.00000000	0.000000e+00
AZGALT2	2.697417e-04	2.968884e-03	0.00000000	1.668849e-03	0.00000000	0.000000e+00	0.05488237	0.00000000	1.835194e-01	0.00000000	5.348390e-02
AZGALT	1.476048e-01	8.393954e-01	0.50686921	1.355326e-01	0.66745200	1.195134e+01	83.85668240	2.18426302	3.063457e+00	0.6775548	2.593378e+01
AZGNT	0.000000e+00	3.551597e-03	0.00000000	3.067598e-04	0.00000000	5.401533e-02	0.00000000	0.00000000	0.000000e+00	0.00000000	3.154011e-03
AAAS	1.809350e+00	4.009987e+00	1.59150034	1.854512e+00	2.93225258	5.206393e+00	4.89089147	3.01089727	3.971748e+00	1.9164218	4.704565e+00
AACS	1.748550e+00	1.262717e+01	8.36942443	5.985727e+00	7.38081529	6.528281e+00	3.45589817	8.81303437	3.334672e+00	6.2701363	8.330804e+00
AADC	2.330674e+01	2.674009e-01	0.31963282	1.063461e-01	0.32911968	7.674094e-01	0.19566896	0.12992847	1.380664e+00	0.00000000	1.672720e+00
AADACL2	3.856332e-04	8.978832e-04	0.00000000	0.000000e+00	0.00000000	0.000000e+00	0.00000000	0.00000000	0.000000e+00	0.00000000	0.000000e+00
AADACL2-AS1	0.000000e+00	0.000000e+00	0.00000000	0.000000e+00	0.00000000	5.780649e-02	0.00000000	0.00000000	0.000000e+00	0.00000000	0.000000e+00
AADACL3	0.000000e+00	0.000000e+00	0.00000000	0.000000e+00	0.00000000	5.175530e-04	0.00000000	0.00000000	0.000000e+00	0.00000000	0.000000e+00
AADACL4	0.000000e+00	1.496356e-03	0.00000000	5.380547e-04	0.00000000	5.772612e-04	0.00000000	0.00000000	0.000000e+00	0.00000000	1.002966e-02
AADAT	5.883759e-01	2.095760e+00	1.08894384	1.807596e+00	1.37009128	2.053139e+00	0.23176832	1.67013473	2.308009e+01	0.2230563	2.011294e+00
AAGAB	4.113689e+00	1.486549e+01	7.39879284	4.955785e+00	9.81552314	1.873571e+01	9.82559641	12.67439143	6.064798e+00	8.7762598	8.197081e+00
AAK1	1.341733e+00	9.045858e+00	3.84183234	2.523636e+00	4.91200539	8.038964e+00	8.98594722	6.87635383	8.912870e+00	9.1263572	8.209565e+00
AAMDC	9.782857e+00	1.571561e+01	9.78155343	9.108193e+00	9.44062464	5.850733e+01	84.94739670	15.74072116	1.896133e+01	32.3489074	5.893165e+01
AAMP	1.108992e+01	3.348245e+01	16.21611908	1.142306e+01	22.98702357	4.695322e+01	55.04142572	30.01772298	2.625547e+01	25.1772350	5.962886e+01
AANAT	2.82549e-02	8.765289e-02	0.07863297	2.345003e-02	0.09784104	1.336035e-02	0.37817407	0.06044421	7.863072e-03	0.00000000	1.398393e-01
AARP	2.170895e+00	5.136682e+00	2.78786243	1.350566e+00	2.53887984	8.567738e+00	12.96747687	4.45703714	5.783508e+00	4.8341910	1.009426e+01

Gene Acinar Alpha Alpha.Beta Beta Delta Ductal Endothelial Gamma.Epsilon Macrophage Mast Stellate

B



Supplementary Figure 5. Querying and visualizing islet cell type-specific expression. (A) Interactive table showing normalized expression levels of genes in each identified cell type. (B) Interactive visualization of differential cell type expression in disease states.